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Braille Unit Recognition Battery Diagnostic Test of Grade 2 Literary Braille MANUAL

American Printing House for the Blind

Louisville, Kentucky 40206-0085

1985

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PART I
INTRODUCTION

Part I—Introduction

Braille Unit Recognition Battery Diagnostic Test of Grade 2 Literary Braille

Purpose

The Braille Unit Recognition Battery consists of three major parts: Section A, Letters; Section B, Grams; and Section C, Modulations. These sections are based on the braille terms which were introduced in *Patterns: The Primary Braille Reading Program* (Caton, Pester, & Bradley, 1980). These terms were chosen because they were developed specifically to be used by teachers of braille reading and, therefore, were appropriate for the battery, which is designed to assess the extent to which students have learned the braille code.

The three major sections of the Braille Unit Recognition Battery include all braille units in grade 2 literary braille except for diacritical marks and braille units which are used in foreign languages. Its purpose is to assess the ability of braille readers to recognize and identify these braille units. The battery can be administered individually or to a group. It is intended primarily for use with students in grades 3 through 12, but it may be used to assess students' progress at lower grade levels or with adults.

Teachers may wish to use the results of this test to assist them in writing Individual Educational Plans for their students. Suggestions for doing this are included in Part IV of this manual, Test Interpretation.

Definitions

The basic term used in this battery is the term "braille unit." It is defined in the *Patterns* program as follows:

Braille unit. A braille unit comprises any shape (or shapes) taken together with its meaning (or value). Braille units can consist of one or more shapes. For example, *go* consists of one shape, *ation* consists of two shapes, etc. There are three types of braille units: (A) letters, (B) grams, and (C) modulations. The term "shape" used in this definition refers to a single configuration made up of from one to six dots. No meaning (value) is given to a shape.

The three major sections of the Braille Unit Recognition Battery are based on the three types of braille units cited above. They are defined in the *Patterns* program as follows:

1. **Letters.** These are either alphabetic or nonalphabetic.
 - a. Alphabetic letters (or letters proper) have a print-alphabetic value.
 - b. Nonalphabetic letters comprise
 - (1) numbers and the decimal point. Numbers may be thought of as letters of a numerical alphabet (11, counting the decimal) which spell number-words.
 - (2) other braille units with abstract letter-like function (asterisk, apostrophe).
2. **Grams.** There are three kinds of grams: phonogram, morphogram, and logogram.
 - a. Phonogram—a braille unit having a phonetic value that would be written in print by more than one alphabetic symbol. Phonograms include one-shape phonograms such as *th*, *ch*, *gh*, the *ing* in *sing*, the *ea* in *read*, the *ed* in *bed*, the *ar* in *car*. Phonograms also include multishapes such as *ation* in *nation*, the *ound* in *sound*, the *ong* in *long*,

the *ance* in dance, the *ity* in pity, the *ness* in Tennessee, and the *less* in bless.

- b. Morphogram—a braille unit having the value of a word element (i.e., inflectional ending, prefix, or suffix). Examples are the *s* in words, the *ing* in looking, the *ed* in looked, the *ance* in avoidance, the *ation* in admiration, the *in* in inconsistent. Note that the shapes that make up *ed*, *ing*, *ance*, *ity*, etc., may appear as phonograms or morphograms, depending on their function in words.
- c. Logogram—a braille unit made up of one or more shapes having the value of a word with either a limited reference or no reference to the phonetic value in the word. There are two kinds of logograms: letter words and wordlets.
 - (1) letter word—a word sign that has a shape that also can be a letter. The words *but*, *can*, *do*, *it*, also have letter values.
 - (2) wordlet—one or more shapes carrying a word value but never a letter value. The words *and*, *for*, and *with* are examples of one-shape wordlets. The words *day*, *name*, *had*, *word*, *know*, *one*, *character*, *through*, and *these* are examples of multishape wordlets, as are the abbreviational logograms known as short-form words; for example, *about*, *after* (two shapes), *braille*, *herself*, and *together* (three shapes).
3. *Modulations*. Modulations are of two kinds: punctuation and register. These have values that do things to letters and grams.
 - a. Punctuation. Within punctuation there are those which
 - (1) look back—period, non-Spanish exclamation.
 - (2) enclose—commas, parentheses, quotation marks.
 - (3) link—hyphen, dash.
 - b. Register. This includes composition signs, looks forward, and may automatically specify where the scope terminates; such braille units are *capital*, *italic*, *letter*, *number*, and *termination signs*. These modify the basic segmental values of what follows; thus they have no separate segmental counterpart in print.

Description

Each of the three major sections of the Braille Unit Recognition Battery is described below and the braille units included in each test are listed. Appendix A, the Scoring Key, gives the items as they appear in the seven individual tests, including correct answers and alternative choices.

Section A, LETTERS. This section consists of two parts: Alphabetic (Test 1) and Nonalphabetic (Test 2) Letters. The organization of this section is as follows:

Test 1—Alphabetic Letters. The braille units included in this test are: Twenty-six alphabetic letters, *a* through *z*.

Test 2—Nonalphabetic Letters (numbers). The braille units included in this test are: Nine numbers of the numeric alphabet, *0* through *9*, presented as one- (Part A), two- (Part B), and three-digit (Part C) numbers. Other nonalphabetic letters, such as the decimal point, asterisk, and apostrophe, are included in Section C, Modulations, because

the test format in that section is more appropriate for testing those braille units.

Section B, GRAMS. This section consists of three parts: Phonograms (Test 3), Morphograms (Test 4), and Letter Words and Wordlets (Tests 5 and 6), which are organized as follows:

Test 3—Phonograms. A complete list of phonograms in Test 3 with examples of words in which each phonogram can be used follows.

ally (Sally)	er (certain)	ou (bout)
ance (dance)	ever (several)	ought (fought)
and (sand)	ff (duffle)	ound (wound)
ar (car)	for (forest)	ount (count)
ation (nation)	ful (awful)	ow (now)
bb (rubber)	gg (suggest)	part (party)
ble (table)	gh (ghost)	right (fright)
cc (occur)	here (adhere)	sh (wash)
ch (chair)	in (pin)	sion (mission)
com (come)	ing (sing)	some (handsome)
con (contary)	ity (city)	st (first)
dd (paddle)	less (bless)	th (thou)
dis (dispel)	ment (comment)	the (theatre)
ea (read)	ness (business)	tion (faction)
ed (red)	of (offer)	under (thunder)
en (pen)	one (none)	wh (what)
ence (fence)	ong (along)	with (within)

Test 4—Morphograms. A complete list of morphograms in Test 4 with examples of words in which each morphogram can be used follows.

after (afterlife)	ed (rubbed)	less (useless)
ally (mathematically)	en (enrage)	ment (monument)
ance (avoidance)	ence (providence)	ness (oneness)
ar (secular)	er (zipper)	sion (aversion)
ation (admiration)	ful (wonderful)	some (loathsome)
be (befriend)	here (cohere)	th (breath)
com (compose)	in (increase)	there (therefore)
con (confuse)	ing (singing)	through (throughout)
dis (disengage)	ity (rarity)	tion (reaction)

Test 5—Letter Words. A complete list of letter words in Test 5 follows.

as (z)	it (x)	rather (r)
but (b)	just (j)	so (s)
can (c)	knowledge (k)	that (t)
do (d)	like (l)	us (u)
every (e)	more (m)	very (v)
from (f)	not (n)	will (w)
go (g)	people (p)	you (y)
have (h)	quite (q)	

Test 6—Wordlets. In Test 6, wordlets are divided into four subtests: One-shape Wordlets (Part A), Two-Shape Wordlets (Part B), Three-Shape Wordlets (Part C), and Four- and Five-Shape Wordlets (Part D). A complete list of wordlets in Test 6 follows.

about	first	spirit
above	for	St. (Street, Saint)
according	friend	still
across	good	such
after	great	that
afternoon	had	the
afterward	here	their
again	him	there
against	immediate	these
almost	in	this
already	its	those
also	know	through
although	letter	time
altogether	little	to
always	lord	today
and	many	together
be	mother	tomorrow
because	much	tonight
before	must	under
behind	myself	upon
below	name	us
beneath	necessary	was
beside	neither	were
between	o'clock	with
beyond	of	where
blind	one	which
braille	out	whose
by	ought	word
cannot	paid	work
character	part	world
child	perceive	would
children	perceiving	your
conceive	perhaps	young
conceiving	question	herself
could	quick	himself
day	receive	itself
deceive	receiving	myself
deceiving	rejoice	oneself
declare	rejoicing	ourselves
declaring	right	themselves
either	said	thyselves
enough	shall	yourself
ever	should	yourselves
father	some	

Section C, MODULATIONS. This section includes punctuation, register, and some signs classified as nonalphabetic letters which were not tested in Section A (accent sign, apostrophe, asterisk, decimal, ellipsis, and the hyphen or dash when used to indicate missing words or letters). Section C consists of only Test 7, in which all three of these components are included. A complete list of the three types of braille units included in Test 7 follows.

A. Punctuation

1. Punctuation which looks back:

colon	period
comma	question mark
exclamation point	semicolon

2. Punctuation which encloses:

bracket or brace (in pairs)
 comma (in pairs)
 parenthesis (in pairs)
 quotation marks, single (in pairs)
 quotation marks, double (in pairs)

3. Punctuation which links:

bar/fraction line
 bracket or brace (one)
 dash*
 long dash*
 hyphen*

*See also Nonalphabetic Letters

B. Register:

capital sign, single	letter sign
capital sign, double	number sign
italic sign, single	termination sign
italic sign, double	

C. Nonalphabetic Letters:

decimal point	accent sign
asterisk	ellipsis
apostrophe	hyphen or dash when used to indicate missing words or letters

Test Materials

The test materials consist of:

1. One student test booklet, which contains all three sections, Tests 1 through 7.
2. The test manual, which contains information related to the test battery development, administration, scoring, interpretation, and technical data.
3. A Student Record Form, which can be used to record student performance on each test and the battery as a whole. This appears as Appendix C.
4. A Braille Mechanics Checklist, which can be used by the teacher to evaluate the physical

aspects of the braille reading task (e.g., hand position, posture, etc.). This checklist can be used either before or after the Braille Unit Recognition Battery is administered. This checklist appears as Appendix D.

The three test sections and their organization were described previously. It is important that the person(s) responsible for administering the tests be familiar with this organization prior to the test administration, since the varying formats of the tests require different methods of administration.

Test Manual

The test manual contains all information needed to administer, score, and interpret the results of the battery. It is extremely important that the person(s) responsible for administering the test be thoroughly familiar with the contents of the manual. They are:

Part I—Introduction: Contains the purpose of the battery and a description of the test and test materials.

Part II—Test Administration: Describes required qualifications for an individual who will administer the battery, test conditions, physical setting, and some specific aspects of test administration such as starting points, etc.

Part III—Directions for Administering: Contains specific directions for administering the test.

Part IV—Test Interpretation: Contains information about instructional implications of student performance and suggestions for using test results in writing Individual Educational Plans.

Part V—Test Development and Technical Information: Contains a description of the procedures followed in developing the battery and the technical data from the field evaluation.

Appendices

- A. Scoring Key
- B. Schools Participating in Field Evaluation
- C. Student Record Form
- D. Braille Mechanics Checklist

Reference

Caton, H., Pester, E., & Bradley, E. J. (1980). *Patterns: The primary braille reading program*. Louisville, KY: American Printing House for the Blind.

PART II
TEST ADMINISTRATION

Part II—Test Administration

Qualifications of Examiner

Since this battery is designed to assess students' knowledge of Grade 2 Literary Braille and to provide information for educational planning for these students, it is strongly recommended that it be administered by a teacher or psychologist trained to work with visually handicapped children. If the test is administered by persons who do not meet these criteria, they should have, at minimum, the following qualifications:

1. A thorough knowledge of Grade 2 Literary Braille.
2. Complete familiarity with the student test materials (e.g., format of braille items in the battery, response mode required of students taking the test, etc.).
3. Complete familiarity with all information in the test manual, particularly the Directions for Administering and time requirements.

In addition to these qualifications, persons who are responsible for the interpretation of test results and any educational planning resulting from the interpretation *must* have a thorough knowledge of the learning characteristics of blind students.

Physical Setting

Test conditions can make a significant difference in a student's performance on the battery. Therefore, the physical setting for the test should be comfortable and free from distractions. To insure optimum performance by students, the testing site should contain the following materials and equipment:

1. An adequate supply of test booklets.
2. An adequate supply of pencils, crayons, or other marking materials.
3. An adequate number of tables and chairs for all students being tested. The height of the tables and chairs should allow the students to sit and hold their arms and hands in a comfortable position. The tables should be large enough to accommodate the test booklets and allow room for marking the test items.

General Instructions

1. The battery can be administered individually or to groups. For group administration, students within each group should be comparable in terms of number of years of braille instruction and achievement level.
2. The administration time is approximately one hour. This may vary somewhat, depending upon the age level and attention span of the students.
3. The information required on the student test booklet should be completed prior to the administration of the test.
4. A short period of practice in marking is suggested before the testing begins. Marking through the answer choice simplifies the scoring process. However, if a student has used a different method of marking (e.g., circling or underlining), this too would be acceptable.
5. Students should be encouraged to attempt to answer all questions. However, they should also be told that it is appropriate to skip a question if they do not know the answer.

Part III, Directions for Administering, contains detailed instructions for administering each test. It is extremely important that the person administering the battery study these directions carefully before administering the battery. Instructions for interpreting the test results can be found in Part IV, Test Interpretation.

PART III
DIRECTIONS FOR ADMINISTERING

Part III—Directions for Administering

SECTION A, LETTERS

ADMINISTERING TEST 1: ALPHABETIC LETTERS

Have all desks cleared, and see that each student has a soft-lead (No. 2) pencil or crayon. Say:

Today we are going to see how well you know the braille code. This is not to earn a grade or a score, but rather to see where you might need help or additional study in the braille code. I am going to give you a booklet. Don't open it or make any marks on it until I tell you what to do.

Distribute the test booklets so that each student gets the copy on which you've written his name. Then say:

Open your booklet to page 1.

Make sure all students have the correct page. Then say:

In this first part, we will see how well you can pick out from a row of alphabet letters the one that I name. Look at the sample at the top of the page. *(Pause.)*
In this row you see a group of five letters. In this row, which one is the letter "x"?

Pause for replies. Then say:

Yes, the fourth letter is the "x." Mark through that letter in your booklet. *(Pause.)*
We will do the rest of the problems in the same way.

Pause. Make sure all students have marked the sample correctly. Then read each item number and the letter to be marked. You may also have to use example words for the letters m, n, b, and d. Say:

- | | | | | | |
|---|-------|-------|-------|-------|-------|
| 1. In number one, mark the letter "i." Mark the letter "i." | | | | | |
| 2. In number two, mark the letter "j." Mark the letter "j." | | | | | |
| 3. n | 7. c | 11. e | 15. s | 19. b | 23. d |
| 4. p | 8. k | 12. a | 16. z | 20. m | 24. w |
| 5. u | 9. x | 13. t | 17. o | 21. v | 25. g |
| 6. y | 10. l | 14. h | 18. r | 22. q | 26. f |

About 10 seconds after reading the last letter, say:

Stop! Put your pencil down now.

Let students stretch, then go on to Test 2.

ADMINISTERING TEST 2: NONALPHABETIC LETTERS (NUMBERS)

See that each student has a pencil or crayon and his test booklet. Say:

This test is to see how well you know braille numbers. Turn to page 4. This is part A, which has only one-digit numbers.

Make sure all students have the correct page. Then say:

Look at the sample at the top of the page. You see a group of five numbers. In this group, find the number “2” and mark through it. (*Pause.*) Which number is the number “2”?

Pause for replies. Then say:

Yes, the second number is the number “2.” You should have marked the second number. Are there any questions?

Answer all questions. Make sure all students have marked the sample correctly. Then read each item number and the number to be marked. Say:

Part A

1. In the first one, mark the number “1.” Mark the number “1.”
2. In the second one, mark the number “4.” Mark the number “4.”
3. 8 5. 2 7. 0 9. 6
4. 3 6. 9 8. 5 10. 7

About 10 seconds after reading the last number, say:

Now, turn to page 5. This is Part B, which has only 2-digit numbers.

Make sure all students have the correct page. Then say:

We will do this part in the same way as Part A. I will call a 2-digit number and you will mark that number in a row of numbers. Look at the first one. Number 1.

Part B

1. In the first one, mark the number “96.” Mark the number “96.”
2. In the second one, mark the number “88.” Mark the number “88.”
3. 87 5. 72 7. 63 9. 39
4. 45 6. 24 8. 51 10. 10

About 10 seconds after reading the last number, say:

Now, turn to page 6. This is Part C, which has only 3-digit numbers.

Make sure all students have the correct page. Then say:

We will do this part in the same way as Parts A and B. I will call a 3-digit number and you will mark the number in a row of numbers. Look at the first one. Number 1.

Part C

1. In the first one mark the number “eight hundred seventy-eight.” Mark “878.”
2. In the second one, mark the number “nine hundred thirty-one.” Mark “931.”
3. 158 5. 676 7. 892 9. 464
4. 300 6. 724 8. 501 10. 679

About 10 seconds after reading the last number, say:

Stop! Put your pencil down now, and close your test booklet.

Let students stretch, then go on to Test 3.

SECTION B, GRAMS

ADMINISTERING TEST 3: PHONOGRAMS

See that each student has a pencil or crayon and his test booklet. Say:

This test is to see how much you know about braille part-words. Turn to Test 3 on page 7.

Make sure all students have the correct page. Then say:

In each line you will see a word with a braille unit which that word contains next to it. A braille unit is sometimes called a contraction. Read the word and *look carefully* at the braille unit. In the same row, at the end of the line, are the letters a, b, and c. After you have read each word, I will say three words. One of these three words contains the sound of the braille unit. Mark the letter that corresponds to the word with the same braille unit. Some of these words will be familiar to you. You do not need to know the meaning of a word to answer the question. Look at the sample at the top of the page. *(Pause.)* Listen to the three words I read to you. The words are: a—rusty. . .b—rosy. . .c—rally. Which of these words has a similar sound and the same braille unit as the word in your sample?

Encourage replies. Then say:

Yes, the word “rally,” answer “c,” has the sound. Mark through answer “c” in your test booklet. *(Pause.)* Are there any questions?

Make sure all students have marked the sample correctly. After answering all questions, read each number, the letters, and the words following them. If a word can be pronounced two ways there is a rhyming word in parentheses beside it. Say:

1. Look at the word in number 1. Sound the braille unit to yourself. *(Pause.)* The words you are to choose from are: “a—stand. . .b—stone. . .c—string.” *(Repeat.)* “a—stand. . .b—stone. . .c—string.”

2. Look at the word in number 2. The words you are to choose from are: “a—turnout. . .b—without. . .c—fallout.” *(Repeat the choices.)*

- | | | |
|----------------|-------------|-------------|
| 3. a—ladder | b—robber | c—shudder |
| 4. a—finish | b—finance | c—final |
| 5. a—think | b—rink | c—sink |
| 6. a—sing | b—sat | c—sand |
| 7. a—bashful | b—bashing | c—bashed |
| 8. a—stone | b—stand | c—start |
| 9. a—ton | b—tin | c—tan |
| 10. a—bounty | b—beauty | c—brightly |
| 11. a—referred | b—referring | c—reference |
| 12. a—sand | b—sink | c—song |
| 13. a—pail | b—paste | c—pity |
| 14. a—farm | b—first | c—fork |
| 15. a—bite | b—bought | c—brow |
| 16. a—wren | b—when | c—then |

17. a—tally	b—taxi	c—tank
18. a—damp	b—done	c—down
19. a—cat	b—car	c—cry
20. a—everything	b—something	c—nothing
21. a—wail	b—west	c—wish
22. a—station	b—stallion	c—standard
23. a—harangue	b—harass	c—harness
24. a—fast	b—fish	c—first
25. a—ride	b—read (feed)	c—rate
26. a—gable	b—maple	c—staple
27. a—concrete	b—canvas	c—cinder
28. a—onion	b—curtain	c—vision
29. a—offer	b—outfit	c—outing
30. a—count	b—cone	c—come
31. a—thesis	b—teacher	c—table
32. a—gem	b—ghost	c—jelly
33. a—bring	b—brought	c—bright
34. a—dispel	b—repel	c—compel
35. a—puzzle	b—bubble	c—giggle
36. a—group	b—grope	c—grape
37. a—finger	b—final	c—formal
38. a—soup	b—send	c—sound
39. a—occur	b—option	c—opinion
40. a—thinker	b—thunder	c—thump
41. a—men	b—map	c—mat
42. a—commence	b—comment	c—complain
43. a—keep	b—cheap	c—creep
44. a—block	b—bless	c—black
45. a—partial	b—portal	c—portion
46. a—lap	b—laid	c—led
47. a—never	b—letter	c—favor
48. a—party	b—port	c—pretty
49. a—wonder	b—shelter	c—rudder
50. a—ruffle	b—rattle	c—rabble

About 10 seconds after reading the last item, say:

Stop! Put your pencil down now, and close your test booklet.

Give students a short break, then go on to Test 4.

ADMINISTERING TEST 4: MORPHOGRAMS

See that each student has a pencil or crayon and his test booklet. Say:

This test will determine whether you know some important prefixes and suffixes.
Turn to Test 4 on page 12.

Make sure all students have the correct page. Then say:

Like the last test, in each row you will see a word with a braille unit from the word next to it. Read the word and look carefully at the braille unit. Sound the braille unit to yourself. At the end of the same row are the letters a, b, and c. I will say three words. One of the three words has a similar sound and the same braille unit in it. Mark the letter of the word that has the same braille unit. Some of these words will be unfamiliar to you. You do not need to know the meaning of a word to answer the question. Look at the sample. Read the word to yourself. (*Pause.*) What is it?

Pause for replies. Then say:

Yes, the word is “careful.” What is the braille unit in the word?

Pause for replies. Then say:

Yes, the braille unit is “ful.” Now I will read three words to you. “a—harmless . . . b—harmful. . . c—harmed.” Which one of these words has the same braille unit as the braille unit in the word on your page?

Pause for replies. Then say:

Yes, the word is “harmful.” Since “harmful” is answer “b,” mark through the “b” in the sample on your page. (*Pause.*) Are there any questions?

After answering all questions and making sure all students have marked the sample correctly, read each item number, each letter, and the word beside it. Say:

In number 1, the words are: “a—without. . . b—cop-out. . . c—throughout.” (*Repeat.*) “a—without. . . b—cop-out. . . c—throughout.”

- | | | |
|-------------------|----------------|---------------|
| 2. a—cohere | b—coexist | c—co-opt |
| 3. a—priced | b—pricing | c—priceless |
| 4. a—legalize | b—legalistic | c—legally |
| 5. a—dispel | b—impel | c—compel |
| 6. a—fighter | b—fighting | c—fights |
| 7. a—regulation | b—regulated | c—regular |
| 8. a—therefore | b—wherefore | c—before |
| 9. a—helpful | b—helping | c—helpless |
| 10. a—enfold | b—refold | c—unfold |
| 11. a—resembled | b—resembling | c—resemblance |
| 12. a—corrected | b—correcting | c—correction |
| 13. a—dedication | b—dedicated | c—dedicating |
| 14. a—movement | b—moved | c—moving |
| 15. a—played | b—playing | c—plays |
| 16. a—lonesome | b—lonely | c—loner |
| 17. a—confused | b—confusing | c—confusion |
| 18. a—regress | b—egress | c—ingress |
| 19. a—conclude | b—include | c—exclude |
| 20. a—contend | b—distend | c—intend |
| 21. a—forethought | b—afterthought | c—unthought |
| 22. a—dependence | b—depended | c—depending |
| 23. a—kinder | b—kindness | c—kindly |

- | | | |
|------------------|------------|------------|
| 24. a—income | b—become | c—outcome |
| 25. a—sparseness | b—sparsely | c—sparcity |
| 26. a—warming | b—warmed | c—warmth |
| 27. a—baking | b—baked | c—baker |

About 10 seconds after reading the last item, say:

Stop! Put your pencil down now, and close your test booklet.

Give students a short break, then go on to Test 5.

ADMINISTERING TEST 5: LETTER WORDS

See that each student has a pencil or crayon and his test booklet. Say:

In this part we want to see how well you know some words in the braille code. Turn to Test 5 on page 15.

Make sure all students have the correct page. Then say:

In this test, we will see how well you know words with one shape. Look at the sample at the top of the page. In this row you will see four one-shape words. Find the word “do” in this row. *(Pause.)* Which word is “do”?

Pause for replies. Then say:

Yes, “do” is the second word in the row. Mark through that word. *(Pause.)* Now we will do the rest of the items in the same way. I will say a word for each line and you will mark that word in your booklet.

Make sure all students have marked the sample correctly. Then read each item number and the word to be marked. Remind the students to mark the word you pronounce in each line.

- | | | | |
|---|--------------|------------|-----------|
| 1. In number one, mark the word “so.” Mark the word “so.” | | | |
| 2. can | 8. will | 14. but | 20. from |
| 3. it | 9. knowledge | 15. as | 21. very |
| 4. you | 10. more | 16. not | 22. that |
| 5. us | 11. like | 17. every | 23. quite |
| 6. do | 12. rather | 18. have | |
| 7. just | 13. go | 19. people | |

About 10 seconds after reading the last item, say:

Stop! Put your pencil down now, and close your test booklet.

Give students a break and let them stretch, then go on to Test 6.

ADMINISTERING TEST 6: WORDLET RECOGNITION

See that each student has a pencil or crayon and his test booklet. Say:

In this part we will again see how well you know some words in the braille code. Look at Test 6 on page 17.

Make sure all students have the correct page.

In parts A, B, C, and D of Test 6, we will see how well you know words of one shape and more. Look at the sample at the top of the page. In this row, you will see four words. Find the word “after” in this row. (*Pause.*) Which word is “after”?

Pause for replies. Then say:

Yes, “after” is the fourth word in the row. Mark through that word. (*Pause.*) Now we will do the rest of the items in the same way. I will say the word for each row and you will mark that word on your page. A full cell is used when two words would be written without a space between them.

Pause. Make sure all students have marked the sample correctly. Then read each item number, the word to be marked, and remind students to mark the word you pronounce in each line. In all four parts, say the number, then the word. Say:

Part A

- | | | | |
|----------|-----------|-----------|----------|
| 1. by | 6. enough | 11. to | 16. and |
| 2. this | 7. still | 12. in | 17. out |
| 3. be | 8. shall | 13. for | 18. with |
| 4. which | 9. of | 14. child | 19. the |
| 5. his | 10. were | 15. was | |

About 10 seconds after reading the last item, say:

Turn to page 19, which is Part B, Two-Shape Wordlets.

Make sure students have the correct page, then read the items in Part B.

Part B

- | | | | |
|-------------|---------------|---------------|-------------|
| 1. its | 19. some | 37. after | 55. friend |
| 2. beside | 20. also | 38. could | 56. good |
| 3. because | 21. their | 39. part | 57. blind |
| 4. tomorrow | 22. name | 40. time | 58. such |
| 5. father | 23. right | 41. whose | 59. tonight |
| 6. would | 24. here | 42. according | 60. below |
| 7. should | 25. between | 43. many | 61. world |
| 8. through | 26. children | 44. there | 62. itself |
| 9. must | 27. into | 45. those | 63. young |
| 10. spirit | 28. today | 46. much | 64. where |
| 11. quick | 29. him | 47. question | 65. little |
| 12. day | 30. paid | 48. beneath | 66. know |
| 13. upon | 31. behind | 49. had | 67. either |
| 14. cannot | 32. character | 50. said | 68. mother |
| 15. one | 33. beyond | 51. word | 69. about |
| 16. ever | 34. before | 52. under | 70. your |
| 17. letter | 35. again | 53. first | 71. work |
| 18. lord | 36. ought | 54. these | |

About 10 seconds after reading the last item, say:

Stop! Put your pencil down now, and close your test booklet.

Give students a short rest break, then go on to Part C, Three-Shape Wordlets. Say:

Turn to page 25, which is Part C, Three-Shape Wordlets.

Make sure all students have the correct page, then read the items in Part C.

Part C

- | | | |
|--------------|---------------|----------------|
| 1. yourself | 11. great | 21. declare |
| 2. almost | 12. across | 22. conceive |
| 3. although | 13. herself | 23. perhaps |
| 4. o'clock | 14. above | 24. always |
| 5. oneself | 15. afternoon | 25. deceive |
| 6. thyself | 16. rejoice | 26. myself |
| 7. immediate | 17. receive | 27. afterward |
| 8. together | 18. against | 28. altogether |
| 9. himself | 19. neither | 29. necessary |
| 10. already | 20. braille | |

About 10 seconds after reading the last item, say:

Stop! Put your pencil down now, and close your test booklet.

Allow students to stretch, then go on to Part D, Four- and Five-Shape Wordlets. Say:

Turn to page 28, which is Part D, Four- and Five-Shape Wordlets.

Make sure all students have the correct page, then read the items in Part D.

Part D

- | | | |
|---------------|---------------|---------------|
| 1. declaring | 5. conceiving | 9. perceiving |
| 2. yourselves | 6. ourselves | 10. receiving |
| 3. deceiving | 7. perceive | |
| 4. rejoicing | 8. themselves | |

About 10 seconds after reading the last item, say:

Stop! Put your pencil down now, and close your test booklet.

Give students a rest break of about 10 minutes, then go on to Test 7.

SECTION C, MODULATIONS

ADMINISTERING TEST 7: PUNCTUATION AND REGISTER

See that each student has a pencil or crayon and his test booklet. Say:

This part of the test is to see how well you know punctuation symbols.

Some of these punctuation symbols may not be clear to you, as you may have heard them called by other names. If this is so, speak out and I will tell you another name that symbol may be called. Are there any questions?

After all questions have been answered, say:

Open your booklet to Test 7 on page 29.

Make sure all students have the correct page. Then say:

In this test you will notice that full cells are used for orientation beside the punctuation signs that might mean something else if they stood alone. A full cell may represent a word, letter, or number. Look at the sample at the top of the page. (*Pause.*) In this line you see a row of five punctuation signs. Which shape is the question mark?

Note that the double opening quotation mark is in the group and some students will choose this. Remind them if they do that they must notice the position of the full cell, this time, in both cases, representing a word.

Yes, the third shape is the question mark. Mark through the question mark.

Make sure all students have marked the sample correctly. Then read each item number and the punctuation sign to be marked, pausing about 10 seconds between each item. If your students know a shape by another name, add that name to your reading. Say:

1. In number one mark through the accent sign. The accent sign.
2. Dash. Mark through the dash.
3. colon
4. double italic sign
5. single closing quotation mark
6. decimal point
7. opening bracket
8. question mark
9. closing parenthesis
10. ellipsis
11. comma
12. semicolon
13. double closing quotation mark
14. fraction line
15. asterisk
16. closing bracket
17. letter sign
18. opening parenthesis
19. apostrophe
20. period
21. long dash
22. exclamation point (or mark)
23. double opening quotation mark
24. single capital sign
25. single italic sign
26. single opening quotation mark
27. termination sign
28. double capital sign
29. hyphen
30. number sign

About 10 seconds after reading the last item, say:

Stop! Put your pencil down now, and close your test booklet.

Collect the test booklets. This is the end of the test battery.

PART IV
TEST INTERPRETATION

Part IV—Test Interpretation

The intent of the battery is simply to determine if a student recognizes braille units in various contexts. Fine discrimination between options was avoided, so a missed item will usually be due to a lack of knowledge or carelessness. In looking at the Student Record Form (Appendix C and next page), it will be apparent that the procedure for checking a student's score and determining the resulting mastery level is simple. If a student's score falls below a 90% mastery level on any test, the teacher should note the incorrect items on the Student Record Form. Appendix A, the Scoring Key, can be used to determine exactly which braille units pose a problem for the student; the teacher can then list those problematic braille units and plan an approach for remediation. While simple, this approach can give content for an educational plan that allows for additional exposure to braille units which are not easily recognized by the student.

Pupil Record Form—Braille Unit Recognition Battery

Name _____ Age (years & months) _____ Years of braille instruction _____

Grade _____ Teacher _____ School _____ Date _____

Total Score Correct _____ (315 items; 90% mastery = 284 items)

The number circled on each test is at the 90% mastery level. If a student's score falls below this percentage, remedial procedures should be used for problematic braille units. Check the incorrect answers on this sheet for use with Appendix A.

Test 1 Alphabet Letters	Test 2 Part A 1-Digit Numbers	Test 2 Part B 2-Digit Numbers	Test 2 Part C 3-Digit Numbers	Test 3 Phonograms	Test 4 Morphograms	Test 5 Letter Words	Test 6 Part A 1-Shape Wordlets	Test 6 Part B 2-Shape Wordlets	Test 6 Part C 3-Shape Wordlets	Test 6 Part D 4- and 5-Shape Wordlets	Test 7 Punctuation & Register
26	10	10	10	50	25	23	19	71	47	23	30
25	8	8	8	49	24	22	18	70	46	22	29
24	7	7	7	48	23	21	17	69	45	21	28
23	6	6	6	47	22	20	16	68	44	20	27
22	5	5	5	46	21	19	15	67	43	19	26
21	4	4	4	45	20	18	14	66	42	18	25
20	3	3	3	44	19	17	13	65	41	17	24
19	2	2	2	43	18	16	12	64	40	16	23
18	1	1	1	42	17	15	11	63	39	15	22
17				41	16	14	10	62	38	14	21
16				40	15	13	9	61	37	13	20
15				39	14	12	8	60	36	12	19
14				38	13	11	7	59	35	11	18
13				37	12	10	6	58	34	10	17
12				36	11	9	5	57	33	9	16
11				35	10	8	4	56	32	8	15
10				34	9	7	3	55	31	7	14
9				33	8	6	2	54	30	6	13
8				32	7	5	1	53	29	5	12
7				31	6	4		52	28	4	11
6				30	5	3		51	27	3	10
5				29	4	2		50	26	2	9
4				28	3	1		49	25	1	8
3				27	2			48	24		7
2				26	1						6
1											5
											4
											3
											2
											1

PART V
TEST DEVELOPMENT
AND
TECHNICAL DATA

Part V—Test Development and Technical Data

Test Development

Purpose

As stated in Part I of this manual, the Braille Unit Recognition Battery is designed to assess students' abilities to recognize and identify the various braille units in Grade 2 Literary Braille. To accomplish this purpose, all braille units except those used in foreign languages and diacritical marks are tested. After identifying specific braille units their students do not know, teachers can develop appropriate practice and drill exercises to teach those braille units.

A secondary purpose of the battery is to assess the students' overall knowledge of Grade 2 Literary Braille. To assist teachers in this area, the mastery level for each of the tests included in the battery is provided in the pupil Record Form. A criterion of 90% correct responses was set for each test in the battery and for the test as a whole. This criterion was chosen because the test developers and braille experts agreed that students should know at least 90% of the braille units included in the tests in order to be considered competent braille readers. It is recommended that students who do not meet this criterion on any individual test, or on the test as a whole, receive additional instruction in the areas in which they are weak.

Procedure

The following procedure was used to develop the *Braille Unit Recognition Battery*:

Selection of Format and Categories. Existing tests of Grade 2 Literary Braille were reviewed to identify their strengths and weaknesses. Results of this review revealed that the existing tests are strong in that they include all braille units in Grade 2 Literary Braille. However, all tests are weak in terms of format and categorization of the braille code. For this reason, the format and the choice of categories for the *Braille Unit Recognition Battery* were designed to overcome these problems. This was accomplished as follows:

1. The format was designed to eliminate confusion in both administration and marking. In tests 1, 2 (Parts A, B, and C), 5, 6 (Parts A, B, C, and D), and 7, the items are read orally by the examiner, and students choose the correct answer from either four or five response choices and mark their choice with crayons or pencils. They are not required to read the entire item. In tests 3 and 4, students are required to read one word containing the braille unit being tested and choose the correct response from three words read orally by the examiner. Students then simply mark the letter of the response which corresponds to the word containing the braille unit they read.

This format provides an easy means of marking, since students are required to read and mark only single braille units. The administration is also simplified by requiring the examiner to read only single braille units.

2. The categories of Grade 2 Literary Braille used in the *Braille Unit Recognition Battery* are the same as those used in *Patterns: The Primary Braille Reading*

Program. They were chosen for two reasons. First, the categories were developed for teaching purposes and they are organized in a way which facilitates the learning of the various braille units. Secondly, the categories avoid the organization of the braille units into groups that are easily confused (e.g., all initial dot-5 braille units in one category, etc.). This latter method of grouping creates extremely difficult discrimination tasks and does not necessarily allow assessment of students' knowledge of the braille code.

Writing of Specifications. A complete set of specifications was written, based on the review of research in testing of braille recognition, existing braille tests, and information in *Patterns: The Primary Braille Reading Program*.

Item Writing and Selection. Since the *Braille Unit Recognition Battery* includes almost all braille units in Grade 2 Literary Braille, special care was taken in writing items which would present them in a simple format which would avoid any confusion for students taking the test. To accomplish this, the test developers worked with the linguistic consultant to write items in each of the categories described in Part I of this manual. The item writing and selection procedures were as follows:

1. An initial item pool was written comprising three items for each braille unit in each category. This resulted in a total of 945 items.
2. The item pool was administered to 67 subjects in three residential schools for evaluation. The schools which participated in the item pool evaluation were the Indiana School for the Blind, the Kentucky School for the Blind, and the Tennessee School for the Blind. Subjects were braille readers in grades 3 through 12 who had had a minimum of one year's instruction in braille reading and had no handicaps in addition to their blindness.
3. Data from the item pool evaluation were analyzed and the final item selection was made, based on this information. Specifically, the individual item analyses were examined to determine which items were especially easy and what answer options were chosen for each item. This enabled the test developers to determine whether errors were related to specific braille code problems (e.g., reversals) or to faulty item construction. Since the battery is intended for diagnostic purposes, the final items chosen were those which would insure a high percentage of correct responses. That is, the final items were not intended to be discriminating in nature.
4. The final items were chosen and the experimental edition of the battery was developed. This consisted of:

Section A: Letters

Test 1: Alphabetic Letters - 26 items

Test 2: Nonalphabetic Letters (Numbers)

Part A - 10 items

Part B - 10 items

Part C - 10 items

Section B: Grams

Test 3: Phonograms - 50 items

Test 4: Morphograms - 27 items

Test 5: Letter Words - 23 items

Test 6: Wordlets

Part A - 19 items

Part B - 71 items

Part C - 29 items

Part D - 10 items

Section C: Modulations

Test 7: Punctuation and Register - 30 items

Total Test - 315 items

5. The final field evaluation was conducted using 315 items selected from the item pool. A total of 150 subjects from both residential and day school programs participated in this evaluation. (Participating schools and school systems are listed in Appendix B.) Subjects were students in grades 3 through 12 who had had a minimum of 1 year's instruction in braille and had no handicaps in addition to blindness. The following subject variables were included in the data analyses:

- a. Grade level
- b. IQ range
- c. Years of braille instruction
- d. Years in school
- e. Sex
- f. Age at onset of blindness
- g. State of residence
- h. Type of school

Detailed information regarding significant variables is included in the Technical Data section of this manual.

Preparation of the Final Edition of the Test Battery

The results of the field evaluation were used in the selection of the final items and the criterion for mastery. The analyses of data indicated that no adjustments needed to be made in the 315 items used in the field evaluation; therefore, these items are included in the final form of the *Braille Unit Recognition Battery*. The analyses also indicated that almost all subjects achieved at the 80% level or higher. The test developers used this statistic, and the opinions of six braille consultants to set the 90% criteria. The consultants unanimously agreed that students should know a minimum of 90% of the braille units in Grade 2 Literary Braille to be considered proficient.

The results of the field evaluation indicated that, for the majority of students, a time limit of approximately 60 minutes for the entire test battery is appropriate. However, it is recommended that the test be given with no time limit, if possible.

Summary of Test Development

In summary, the *Braille Unit Recognition Battery* was developed as follows:

1. Existing tests were reviewed
2. Specifications for new test were written
3. An item pool was written
4. The item pool was evaluated in the field

5. Items were selected for final form of test battery
6. Final test items were evaluated in the field
7. Data were analyzed
8. Final items were selected
9. Final form of test was developed

The following section includes detailed information for the data analyses.

Psychometric Information

Since this diagnostic battery is based upon a new linguistic model of the braille code by Hamp and Caton (Caton, et al., 1980), its validity rests upon the extent to which the perceptual-cognitive processes described by the model are represented by the test items. This type of validity is called "content validity," and it depends upon a rational analysis of the correspondence between the test content and the construct(s) the test is designed to measure. The previously described procedures by which the items were constructed assures a high degree of content validity for this battery. Due to the novelty of this linguistic model, "criterion-related validity," involving correlations with other observations of the same braille decoding skills, is not possible at present.

Table 1 contains technical information about selected psychometric characteristics of the battery as a whole and each of the diagnostic skill categories measured by the battery. This table reports information concerning (a) number of individuals in the standardization sample taking the final version of the battery, (b) average difficulty of items, (c) variability of scores, (d) estimate of reliability and errors of measurement, and (e) performance relative to a 90% criterion of adequacy.

Key to Table 1

Test 1: Alphabetic Letters
 Test 2A: One-Digit Numbers
 Test 2B: Two-Digit Numbers
 Test 2C: Three-Digit Numbers
 Test 3: Phonograms
 Test 4: Morphograms
 Test 5: Letter Words
 Test 6A: One-Shape Wordlets
 Test 6B: Two-Shape Wordlets
 Test 6C: Three-Shape Wordlets
 Test 6D: Four- and Five-Shape Wordlets
 Test 7: Punctuation and Register

Table 1
Braille Diagnostic Reading Battery Psychometric Characteristics

Statistics	1	2A	2B	2C	3	4	5	6A	6B	6C	6D	7	Total
<i>N</i> (Subjects)	141	123	122	123	147	143	104	147	147	145	144	146	82
<i>N</i> (Items)	26	10	10	10	50	27	23	19	71	29	10	30	315
Mean	23.96 (92%)	9.62 (96%)	9.84 (98%)	9.60 (96%)	43.84 (88%)	23.55 (87%)	22.58 (98%)	17.97 (95%)	68.35 (96%)	27.64 (95%)	8.99 (90%)	21.88 (73%)	288.74 (91%)
Median	25.31 (96%)	9.91 (99%)	9.93 (99%)	9.84 (98%)	47.63 (95%)	25.67 (95%)	22.89 (99%)	18.53 (98%)	70.57 (99%)	28.58 (99%)	9.47 (95%)	23.29 (78%)	299.50 (95%)
<i>SD</i>	3.74	1.18	.46	1.04	9.37	5.39	1.47	1.71	7.98	3.13	1.53	6.52	32.33
<i>SE</i> of Measurement	1.18	.51	.38	.56	1.94	1.42	.58	.93	1.30	1.00	.97	2.17	4.60
KR-21 Reliability	.90	.82	.31	.71	.96	.93	.84	.70	.97	.90	.68	.89	.98
Group Coefficient of Agreement	.91	.94	.97	.92	.90	.88	.97	.88	.98	.93	.76	.85	.94
Percentage Above 90% Criterion	81%	90%	97%	95%	70%	77%	96%	87%	92%	91%	76%	28%	75%

N (Subject)—The number of individuals taking the battery in the standardization sample varies among different portions of the battery. It should be noted that the *N* of 82 for the total battery is considerably smaller than the *N*'s for 12 tests. This is due to the necessity for using only the responses of individuals who had completed all of the tests in determining reliability for the total battery. It was also considered desirable to base other total battery statistics on the same respondents used in determining reliability coefficients.

N (Items), Mean and Median Percentages—Since the number of items varies among different tests, the difficulty of each test is most easily given by the mean or median score expressed as a percentage. Such percentages represent average item difficulties. Thus for test category number 1 the mean score was 23.96. Since 23.96 represents 96% of the 26 items on this test, the average difficulty of these items is 96%. Since the distributions on this criterion-referenced battery are negatively skewed, the means tend to be underestimations of the point of central tendency. Therefore, median percentages are better estimates of the battery difficulty than mean percentages.

Due to the fact that the primary purpose of this diagnostic battery is to select those individuals whose basic braille decoding skills are so weak that they need special assistance, it is desirable and necessary that the average difficulty of each test be low. If test difficulty is sufficiently low, the errors of measurement are minimized for those individuals near the 90% criterion of adequacy. This being the case, however, the present battery should *not* be used to measure individual differences in skill throughout the distribution of measurements. A test designed for the latter purpose should yield more difficult average scores and closer approximations to normal distributions than are produced by this diagnostic battery.

Reliability and Standard Error of Measurement—Two estimates of test reliability are provided for the battery. The Kuder-Richardson (KR-21) reliability coefficient provides a conservative estimate of the average of all possible split-half reliability coefficients. This reliability coefficient may be interpreted as an estimation of the proportion of the variance in the distribution of test scores attributable to true score (i.e., nonerror) differences in the trait being measured. Due to its wide-spread use, it is provided in Table 1.

However, this type of reliability coefficient is not entirely appropriate for use with some criterion-referenced tests which may have skewed distributions and limited variances. A better reliability coefficient for this battery is the Subkoviak Group Coefficient of Agreement, which indicates the average probability for individuals who fall above (or below) a criterion score on one test administration to fall similarly above (or below) the criterion on a second administration of the same test. Note test 2B, for example, where the KR-21 reliability is only .31. The Group Coefficient of Agreement for this same test is .97. Such an estimate of reliability is in keeping with the purpose of a test designed to measure the attainment or nonattainment of a criterion of adequate performance, rather than the measurement of individual differences in skill.

The standard error of the measurements provides a band of possible error on either side of an individual's observed score within which there is a reasonable probability that the measurement of his true ability might be found.

Percentage Above the 90% Criterion—Percentages of individuals falling above the criterion of 90% vary among the 12 diagnostic categories. Note the particularly low percentage for Test 7. Choice of the 90% criterion was based upon the importance of developing a high

degree of mastery in each diagnostic category of braille decoding skills to become a proficient reader.

Table 2 on the next page presents Pearson product moment correlation coefficients among all possible combinations of test categories. The general picture presented by this table is that of a set of moderately interrelated diagnostic categories. That is, an individual who is low on a given category is somewhat likely to be low on one or more other categories. Since these tests are not statistically independent, it is very important to refrain from obtaining differences between one test score and any other test score to make diagnostic interpretations. To the extent that two tests are correlated, the error of measurement of their difference will exceed the average error of measurement of the two tests taken separately. Therefore, it is advisable to interpret each test score in relation to the 90% criterion and *not* by subtracting one test score from another to obtain “difference scores.”

40 4/10/11

Table 2

Intercorrelations Among Diagnostic Skill Categories

Category	2A	2B	2C	3	Category		6A	6B	6C	6D	7
					4	5					
1	.64	.14*	.46	.51	.55	.38	.45	.47	.37	.42	.49
2A		.28	.59	.59	.51	.70	.53	.65	.54	.57	.38
2B			.50	.42	.40	.54	.40	.51	.49	.38	.25
2C				.61	.57	.83	.64	.71	.73	.50	.41
3					.86	.54	.61	.63	.67	.58	.67
4						.55	.63	.61	.68	.61	.71
5							.60	.60	.82	.62	.31
6A								.65	.68	.60	.52
6B									.86	.61	.53
6C										.68	.55
6D											.52

* $P = .055$. All other correlations are significant at $p \leq .01$.

Reference

Caton, H., Pester, E., & Bradley, E. J. (1980). *Patterns: The primary braille reading program*. Louisville, KY: American Printing House for the Blind.

APPENDIX A
SCORING KEY

(Correct answer underlined.)

44 blank

Test 1: Alphabetic Letters

(p. 1) 1-10					(p. 2) 11-23					(p. 3) 24-26				
1. a	<u>i</u>	j	w	z	11. o	v	y	<u>e</u>	w	24. v	t	<u>w</u>	l	k
2. <u>j</u>	x	b	i	u	12. <u>a</u>	b	y	f	m	25. m	t	<u>g</u>	y	h
3. r	<u>n</u>	t	c	u	13. j	r	q	w	<u>t</u>	26. r	o	h	k	<u>f</u>
4. u	<u>p</u>	r	g	n	14. <u>h</u>	t	v	u	y					
5. b	y	x	<u>u</u>	c	15. w	e	x	<u>s</u>	y					
6. o	w	<u>y</u>	m	d	16. t	<u>z</u>	s	d	c					
7. n	<u>c</u>	a	t	q	17. c	d	<u>o</u>	e	r					
8. x	w	<u>k</u>	q	e	18. b	a	e	o	<u>r</u>					
9. w	t	b	q	<u>x</u>	19. e	i	w	<u>b</u>	l					
10. <u>l</u>	t	o	k	n	20. x	<u>m</u>	u	i	b					
					21. o	n	x	<u>v</u>	p					
					22. z	r	<u>q</u>	l	w					
					23. e	i	<u>d</u>	c	n					

Test 2: Nonalphabetic Letter Recognition (Numbers)

Part A — (p. 4) 1-10					Part B — (p. 5) 1-10					Part C — (p. 6) 1-10				
1. 4	8	<u>1</u>	3	2	1. 98	35	<u>96</u>	84	42	1. 954	<u>878</u>	492	358	778
2. 6	0	9	5	<u>4</u>	2. 26	66	28	<u>88</u>	57	2. 721	242	<u>931</u>	117	790
3. 2	<u>8</u>	4	9	1	3. 64	13	<u>87</u>	12	14	3. 990	908	<u>158</u>	129	542
4. 8	2	6	<u>3</u>	9	4. 58	51	34	99	<u>45</u>	4. 205	<u>300</u>	301	335	636
5. 3	7	5	<u>2</u>	1	5. 86	27	56	77	<u>72</u>	5. 763	950	<u>676</u>	393	918
6. 0	<u>9</u>	8	1	6	6. 53	59	10	26	<u>24</u>	6. 893	772	998	<u>724</u>	420
7. 6	2	<u>0</u>	5	7	7. 74	29	36	97	<u>63</u>	7. 674	<u>892</u>	193	712	988
8. 0	2	<u>5</u>	9	8	8. <u>51</u>	76	62	48	81	8. 339	816	218	901	<u>501</u>
9. <u>6</u>	2	5	4	0	9. 30	98	18	<u>39</u>	54	9. 784	824	801	863	<u>464</u>
10. 9	6	<u>7</u>	5	4	10. 72	<u>10</u>	75	38	64	10. 524	705	<u>679</u>	519	450

Test 3: Phonograms

(p. 7) 1-10

1. ring ing	a. stand	b. stone	c. <u>string</u> *
2. within with	a. turnout	b. <u>without</u>	c. fallout
3. rubber bb	a. ladder	b. <u>robber</u>	c. shudder
4. romance ance	a. finish	b. <u>finance</u>	c. final
5. thing th	a. <u>think</u>	b. rink	c. sink
6. hand and	a. sing	b. sat	c. <u>sand</u>
7. awful ful	a. <u>bashful</u>	b. bashing	c. bashed
8. bone one	a. <u>stone</u>	b. stand	c. start
9. pin in	a. ton	b. <u>tin</u>	c. tan
10. county ount	a. <u>bounty</u>	b. beauty	c. brightly

(p. 8) 11-23

11. fence ence	a. referred	b. referring	c. <u>reference</u>
12. long ong	a. sand	b. sink	c. <u>song</u>
13. city ity	a. pail	b. paste	c. <u>pity</u>
14. force for	a. farm	b. first	c. <u>fork</u>
15. fought ought	a. bite	b. <u>bought</u>	c. brow
16. what wh	a. wren	b. <u>when</u>	c. then
17. rally ally	a. <u>tally</u>	b. taxi	c. tank
18. brown ow	a. damp	b. done	c. <u>down</u>
19. bar ar	a. cat	b. <u>car</u>	c. cry
20. somewhat some	a. everything	b. <u>something</u>	c. nothing
21. stay st	a. wail	b. <u>west</u>	c. wish
22. vocation ation	a. <u>station</u>	b. stallion	c. standard
23. business ness	a. harangue	b. harass	c. <u>harness</u>

* a., b., and c. answers are given orally but do not appear in the test booklet. They are given here for teacher convenience.

Test 3: Phonograms (continued)

(p. 9) 24-35

24. wash sh	a. fast	b. <u>fish</u>	c. first
25. meat ea	a. ride	b. <u>read</u>	c. rate
26. table ble	a. <u>gable</u>	b. maple	c. staple
27. contrary con	a. <u>concrete</u>	b. canvas	c. cinder
28. erosion sion	a. onion	b. curtain	c. <u>vision</u>
29. office of	a. <u>offer</u>	b. outfit	c. outing
30. company com	a. count	b. cone	c. <u>come</u>
31. theater the	a. <u>thesis</u>	b. teacher	c. table
32. ghetto gh	a. gem	b. <u>ghost</u>	c. jelly
33. fright right	a. bring	b. brought	c. <u>bright</u>
34. distant dis	a. <u>dispel</u>	b. repel	c. compel
35. wiggle gg	a. puzzle	b. bubble	c. <u>giggle</u>

(p. 10) 36-48

36. soup ou	a. <u>group</u>	b. grope	c. grape
37. order er	a. <u>finger</u>	b. final	c. formal
38. bound ound	a. soup	b. send	c. <u>sound</u>
39. raccoon cc	a. <u>occur</u>	b. option	c. opinion
40. plunder under	a. thinker	b. <u>thunder</u>	c. thump
41. ten en	a. <u>men</u>	b. map	c. mat
42. moment ment	a. commence	b. <u>comment</u>	c. complain
43. chin ch	a. keep	b. <u>cheap</u>	c. creep
44. unless less	a. block	b. <u>bless</u>	c. black
45. notion tion	a. partial	b. portal	c. <u>portion</u>
46. bed ed	a. lap	b. laid	c. <u>led</u>
47. clever ever	a. <u>never</u>	b. letter	c. favor
48. partner part	a. <u>party</u>	b. port	c. pretty

(p. 11) 49-50

49. sudden dd	a. wonder	b. shelter	c. <u>rudder</u>
50. suffer ff	a. <u>ruffle</u>	b. rattle	c. rabble

Test 4: Morphograms

(p. 12) 1-9

- | | | | |
|-----------------------|---------------------|--------------------|-------------------------|
| 1. throughway through | a. without | b. cop-out | c. <u>throughout*</u> |
| 2. adhere here | a. <u>cohere</u> | b. coexist | c. co-opt |
| 3. thoughtless less | a. priced | b. pricing | c. <u>priceless</u> |
| 4. artificially ally | a. realism | b. reality | c. <u>realistically</u> |
| 5. compose com | a. dispel | b. impel | c. <u>compel</u> |
| 6. touching ing | a. fighter | b. <u>fighting</u> | c. fights |
| 7. singular ar | a. regulation | b. regulated | c. <u>regular</u> |
| 8. thereafter there | a. <u>therefore</u> | b. wherefore | c. before |
| 9. dreadful ful | a. helpful | b. <u>helping</u> | c. helpless |

(p. 13) 10-21

- | | | | |
|------------------------|----------------------|------------------------|-----------------------|
| 10. enrage en | a. <u>enfold</u> | b. refold | c. unfold |
| 11. inheritance ance | a. resembled | b. resembling | c. <u>resemblance</u> |
| 12. attention tion | a. corrected | b. correcting | c. <u>correction</u> |
| 13. abbreviation ation | a. <u>dedication</u> | b. dedicated | c. dedicating |
| 14. settlement ment | a. <u>movement</u> | b. moved | c. moving |
| 15. spilled ed | a. <u>played</u> | b. playing | c. plays |
| 16. loathsome some | a. <u>lonesome</u> | b. lonely | c. loner |
| 17. erosion sion | a. confused | b. confusing | c. <u>confusion</u> |
| 18. increase in | a. regress | b. egress | c. <u>ingress</u> |
| 19. contract con | a. <u>conclude</u> | b. include | c. exclude |
| 20. discover dis | a. contend | b. <u>distend</u> | c. intend |
| 21. afterlife after | a. forethought | b. <u>afterthought</u> | c. unthought |

(p. 14) 22-27

- | | | | |
|--------------------|----------------------|--------------------|--------------------|
| 22. reference ence | a. <u>dependence</u> | b. depended | c. depending |
| 23. blindness ness | a. kinder | b. <u>kindness</u> | c. kindly |
| 24. believe be | a. income | b. <u>become</u> | c. outcome |
| 25. gravity ity | a. sparseness | b. sparsely | c. <u>sparcity</u> |
| 26. breadth th | a. warming | b. warmed | c. <u>warmth</u> |
| 27. talker er | a. baking | b. baked | c. <u>baker</u> |

*a., b., c. answers are given orally but do not appear in the test booklet. They are given here for teacher convenience.

Test 5: Letter Words

(p. 15) 1-10				(p. 16) 11-23			
1. will	you	it	<u>so</u>	11. knowledge	rather	<u>like</u>	not
2. just	do	<u>can</u>	not	12. but	like	<u>rather</u>	have
3. us	so	very	<u>it</u>	13. but	<u>go</u>	just	do
4. <u>you</u>	can	go	very	14. do	<u>but</u>	as	have
5. <u>us</u>	have	more	rather	15. that	very	<u>as</u>	not
6. from	go	<u>do</u>	just	16. knowledge	<u>not</u>	so	that
7. that	from	will	<u>just</u>	17. us	<u>every</u>	it	as
8. more	rather	every	<u>will</u>	18. every	knowledge	can	<u>have</u>
9. quite	have	<u>knowledge</u>	go	19. go	every	<u>people</u>	rather
10. <u>more</u>	every	just	knowledge	20. more	can	<u>from</u>	will
				21. just	rather	will	<u>very</u>
				22. so	from	<u>that</u>	rather
				23. like	have	people	<u>quite</u>

Test 6: Wordlets

Part A — (p. 17) 1-10				(p. 18) 11-19			
1. to	<u>by</u>	the	in	11. which	still	<u>to</u>	be
2. still	his	shall	<u>this</u>	12. enough	and	<u>in</u>	shall
3. <u>be</u>	with	and	was	13. was	<u>for</u>	to	shall
4. <u>which</u>	still	his	child	14. shall	be	enough	<u>child</u>
5. to	by	this	<u>his</u>	15. by	<u>was</u>	which	this
6. by	with	child	<u>enough</u>	16. <u>and</u>	by	with	of
7. enough	<u>still</u>	child	for	17. <u>out</u>	in	for	with
8. this	still	<u>shall</u>	by	18. be	enough	the	<u>with</u>
9. by	<u>of</u>	with	which	19. <u>the</u>	was	be	with
10. by	of	to	<u>were</u>				

Test 6: Wordlets (continued)

Part B (p. 19) 1-12				(p. 20) 13-25			
1. friend	<u>its</u>	upon	question	13. him	<u>upon</u>	young	your
2. lord	upon	these	<u>beside</u>	14. name	those	<u>cannot</u>	should
3. spirit	after	had	<u>because</u>	15. some	<u>one</u>	good	must
4. ever	today	<u>tomorrow</u>	word	16. these	name	father	<u>ever</u>
5. <u>father</u>	character	could	such	17. <u>letter</u>	part	many	here
6. <u>would</u>	young	lord	where	18. <u>lord</u>	him	spirit	under
7. <u>should</u>	word	much	know	19. had	cannot	there	<u>some</u>
8. such	name	<u>through</u>	your	20. young	blind	<u>also</u>	time
9. tomorrow	<u>must</u>	some	such	21. spirit	part	today	<u>their</u>
10. little	<u>spirit</u>	about	your	22. their	many	there	<u>name</u>
11. <u>quick</u>	its	good	itself	23. your	<u>right</u>	work	friend
12. upon	<u>day</u>	there	time	24. right	cannot	could	<u>here</u>
				25. would	<u>between</u>	mother	beside

Test 6: Wordlets (continued)

(p. 21) 26-37				(p. 22) 38-50			
26. <u>children</u>	blind	their	your	38. <u>could</u>	into	some	had
27. <u>into</u>	itself	many	blind	39. time	paid	whose	<u>part</u>
28. word	<u>today</u>	under	friend	40. under	such	<u>time</u>	young
29. mother	<u>him</u>	where	cannot	41. <u>whose</u>	lord	spirit	according
30. letter	know	friend	<u>paid</u>	42. ought	where	<u>according</u>	again
31. time	through	said	<u>behind</u>	43. <u>many</u>	tomorrow	also	those
32. ever	some	<u>character</u>	whose	44. <u>there</u>	these	work	lord
33. <u>beyond</u>	itself	cannot	young	45. <u>those</u>	its	little	cannot
34. after	<u>before</u>	first	cannot	46. would	first	<u>much</u>	right
35. name	quick	<u>again</u>	part	47. <u>question</u>	him	<u>through</u>	some
36. lord	into	<u>ought</u>	again	48. father	day	<u>beneath</u>	character
37. tonight	<u>after</u>	itself	would	49. <u>had</u>	time	question	ought
				50. itself	paid	little	<u>said</u>

Test 6: Wordlets (continued)

(p. 23) 51-62				(p. 24) 63-71			
51. him	some	<u>word</u>	tonight	63. tonight	question	<u>young</u>	paid
52. there	children	young	<u>under</u>	64. know	<u>where</u>	first	today
53. tomorrow	<u>first</u>	also	much	65. into	must	<u>little</u>	through
54. work	there	<u>these</u>	its	66. where	under	<u>know</u>	tomorrow
55. <u>friend</u>	there	your	young	67. work	where	<u>either</u>	little
56. <u>good</u>	blind	again	these	68. word	these	<u>mother</u>	upon
57. world	<u>blind</u>	character	cannot	69. one	<u>about</u>	little	friend
58. also	much	<u>such</u>	friend	70. <u>your</u>	these	itself	ought
59. its	their	day	<u>tonight</u>	71. whose	<u>work</u>	children	tonight
60. know	one	should	<u>below</u>				
61. your	quick	<u>world</u>	under				
62. question	these	<u>itself</u>	paid				

Test 6: Wordlets (continued)

Part C (p. 25) 1-12			
1. <u>yourself</u>	perhaps	herself	altogether
2. perhaps	great	<u>almost</u>	against
3. altogether	receive	herself	<u>although</u>
4. <u>o'clock</u>	already	immediate	afterward
5. oneself	almost	altogether	<u>neither</u>
6. neither	conceive	<u>thyself</u>	braille
7. together	almost	receive	<u>immediate</u>
8. <u>together</u>	altogether	yourself	almost
9. across	<u>himself</u>	o'clock	altogether
10. against	altogether	o'clock	<u>already</u>
11. himself	although	above	<u>great</u>
12. <u>across</u>	thyself	altogether	perhaps

Test 6: Wordlets (continued)

(p. 26) 13-25

13. afterward	himself	neither	<u>herself</u>
14. <u>above</u>	almost	deceive	himself
15. already	immediate	afterward	<u>afternoon</u>
16. thyself	<u>rejoice</u>	altogether	perhaps
17. myself	<u>receive</u>	oneself	deceive
18. always	<u>against</u>	already	herself
19. o'clock	himself	<u>neither</u>	oneself
20. almost	neither	great	<u>braille</u>
21. across	o'clock	<u>declare</u>	already
22. although	afterward	against	<u>conceive</u>
23. <u>perhaps</u>	necessary	immediate	deceive
24. afternoon	<u>always</u>	afterward	although
25. perhaps	herself	declare	<u>deceive</u>

Test 6: Wordlets (continued)

(p. 27) 26-29

26. already	perhaps	<u>myself</u>	immediate
27. necessary	neither	declare	<u>afterward</u>
28. <u>altogether</u>	already	neither	almost
29. <u>necessary</u>	oneself	neither	already

Test 6: Wordlets (continued)

Part D (p. 28) 1-10

1. perceive	conceiving	<u>declaring</u>	deceiving
2. perceiving	declaring	<u>yourselves</u>	themselves
3. themselves	receiving	yourselves	<u>deceiving</u>
4. perceiving	yourselves	receiving	<u>rejoicing</u>
5. deceiving	<u>conceiving</u>	receiving	perceive
6. <u>ourselves</u>	rejoicing	perceiving	conceiving
7. <u>perceive</u>	conceiving	receiving	perceiving
8. rejoicing	receiving	perceive	<u>themselves</u>
9. <u>perceiving</u>	rejoicing	perceive	yourselves
10. rejoicing	deceiving	<u>receiving</u>	perceiving

End of Test 6

Test 7: Punctuation and Register

(p. 29) 1-10

1. italic sign, single	<u>accent sign</u>	italic sign, double	quotation mark, single closing	comma
2. long dash	colon	<u>dash</u>	period	parenthesis, closing
3. italic sign, single	asterisk	exclamation point	dash	<u>colon</u>
4. italic sign, single	semicolon	parenthesis, <u>closing</u>	italic sign, double	termination sign
5. question mark	letter sign	exclamation point	italic sign, single	quotation mark, single <u>closing</u>
6. termination sign	accent sign	capital sign, double	<u>decimal point</u>	fraction line
7. number sign	quotation mark, single closing	exclamation point	bracket, <u>opening</u>	decimal point
8. <u>question mark</u>	capital sign	bracket, closing	dash	asterisk
9. decimal point	capital sign	parenthesis, <u>closing</u>	comma	question mark
10. comma	<u>ellipsis</u>	capital sign, double	colon	dash

Test 7: Punctuation and Register (continued)

(p. 30) 11-23

11. exclamation point	question mark	letter sign	<u>comma</u>	semicolon
12. termination sign	question mark	capital sign	<u>semicolon</u>	italic sign, single
13. letter sign	quotation marks, double closing	comma	exclamation point	italic sign, double
14. bracket, opening	colon	<u>fraction line</u>	quotation mark, single closing	ellipsis
15. ellipsis	<u>asterisk</u>	quotation marks, double closing	letter sign	hyphen
16. dash	decimal point	hyphen	ellipsis	bracket, closing
17. long dash	parenthesis, opening	<u>letter sign</u>	quotation mark, single closing	capital sign, double
18. italic sign, single	parenthesis, opening	number sign	letter sign	dash
19. colon	capital sign, double	quotation mark, single opening	termination sign	<u>apostrophe</u>
20. bracket, closing	<u>period</u>	hyphen	dash	capital sign, double
21. quotation mark, single opening	parenthesis, opening	<u>long dash</u>	semicolon	ellipsis
22. fraction line	number sign	quotation marks, double closing	capital sign, double	<u>exclamation point</u>
23. comma	parenthesis, closing	dash	italic sign, double	quotation marks, double opening

Test 7: Punctuation and Register (continued)

Part D (p. 31) 24-30

24. termination sign	capital sign, <u>single</u>	bracket, closing	comma	exclamation point
25. period	quotation mark, single opening	fraction line	italic sign, <u>single</u>	exclamation point
26. italic sign, double	asterisk	italic sign, single	quotation mark, single <u>opening</u>	colon
27. fraction line	<u>termination sign</u>	long dash	accent sign	italic sign, double
28. quotation mark, single closing	long dash	capital sign, <u>double</u>	dash	letter sign
29. termination sign	accent sign	<u>hyphen</u>	quotation marks, double opening	italic sign, single
30. <u>number sign</u>	long dash	letter sign	italic sign, double	comma

END OF TEST

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APPENDIX B
SCHOOLS PARTICIPATING IN
THE TEST DEVELOPMENT

California

California School for the Blind
500 Walnut Avenue
Fremont, California 94536

Castro Valley Schools
Special Services
P.O. Box 2146
Castro Valley, California 94546

Frances Blend Elementary School
5210 Clinton Street
Los Angeles, California 90004

San Juan Unified School District
3738 Walnut Avenue
Carmichael, California 95608

Connecticut

Connecticut State Board of Education
and Services for the Blind
170 Ridge Road
Wethersfield, Connecticut 06109

Florida

Florida School for the Deaf and
the Blind
P.O. Box 1209
St. Augustine, Florida 32084

Exceptional Student Education
1005 East Broward Boulevard
Ft. Lauderdale, Florida 33301

Exceptional Student Services
1601 Prudential Drive, 4th Floor
Jacksonville, Florida 32207

Florida Diagnostic and Learning
Resources
9229 Southwest 52 Terrace
Miami, Florida 33165

Indiana

Indiana School for the Blind
(ITEM POOL)
7725 North College Avenue
Indianapolis, Indiana 46240

Kentucky

Kentucky School for the Blind
(ITEM POOL)
1867 Frankfort Avenue
Louisville, Kentucky 40206

Oklahoma

Parkview School
3300 Gibson Street
Muskogee, Oklahoma 74401

Ontario

W. Ross MacDonald School
Brant Avenue
Brantford, Ontario
Canada N3T 3T9

Tennessee

Tennessee School for the Blind
(ITEM POOL)
115 Stewart Ferry Pike
Nashville, Tennessee 37214

APPENDIX C
STUDENT RECORD FORM

Pupil Record Form—Braille Unit Recognition Battery

Name _____ Age (years & months) _____ Years of braille instruction _____

Grade _____ Teacher _____ School _____ Date _____

Total Score Correct _____ (315 items; 90% mastery = 284 items)

The number circled on each test is at the 90% mastery level. If a student's score falls below this percentage, remedial procedures should be used for problematic braille units. Check the incorrect answers on this sheet for use with Appendix A.

Test 1 Alphabet Letters	Test 2 Part A 1-Digit Numbers	Test 2 Part B 2-Digit Numbers	Test 2 Part C 3-Digit Numbers	Test 3 Phonograms	Test 4 Morphograms	Test 5 Letter Words	Test 6 Part A 1-Shape Wordlets	Test 6 Part B 2-Shape Wordlets	Test 6 Part C 3-Shape Wordlets	Test 6 Part D 4- and 5-Shape Wordlets	Test 7 Punctuation & Register
26	10	10	10	50	27	23	19	71	47	23	30
25	9	9	9	49	26	22	18	70	46	22	29
24	8	8	8	48	25	21	17	69	45	21	28
23	7	7	7	47	24	20	16	68	44	20	27
22	6	6	6	46	23	19	15	67	43	19	26
21	5	5	5	45	22	18	14	66	42	18	25
20	4	4	4	44	21	17	13	65	41	17	24
19	3	3	3	43	20	16	12	64	40	16	23
18	2	2	2	42	19	15	11	63	39	15	22
17	1	1	1	41	18	14	10	62	38	14	21
16				40	17	13	9	61	37	13	20
15				39	16	12	8	60	36	12	19
14				38	15	11	7	59	35	11	18
13				37	14	10	6	58	34	10	17
12				36	13	9	5	57	33	9	16
11				35	12	8	4	56	32	8	15
10				34	11	7	3	55	31	7	14
9				33	10	6	2	54	30	6	13
8				32	9	5	1	53	29	5	12
7				31	8	4		52	28	4	11
6				30	7	3		51	27	3	10
5				29	6	2		50	26	2	9
4				28	5	1		49	25	1	8
3				27	4			48	24		7
2				26	3						6
1					2						5
					1						4
											3
											2
											1

APPENDIX D
BRAILLE MECHANICS CHECKLIST

Braille Mechanics Checklist

The Braille Mechanics Checklist is based on information from the following sources:

1. Maxfield, K. E. (1928). *The blind child and his reading*. New York: American Foundation for the Blind.
2. Lowenfeld, B., Abel, G. L., & Hatlen, P. H. (1969). *Blind children learn to read*. Springfield, IL: Charles C Thomas.
3. Harley, R. K., Henderson, F. M., & Truan, M. B. (1979). *The teaching of braille reading*. Springfield, IL: Charles C Thomas.

The purpose of the checklist is to provide teachers with a guide for observing and evaluating the physical aspects of braille reading. Teachers should evaluate students individually, using relatively easy reading material at the child's educational level.

The items on the checklist are in a multiple-choice format, with the first option (option a.) in each item as the preferred practice. Teachers can use the information gained from the evaluation to incorporate training programs in the mechanics of braille reading into individual students' Individual Educational Plans.

Braille Mechanics Checklist

Directions: Check the response that best describes the pupil's behavior.
At times there will be more than one check per item.

1. The pupil's chair is

- _____ a. just right for feet to rest comfortably on the floor
- _____ b. too low
- _____ c. too high

2. The pupil reads the book

- _____ a. at elbow level
- _____ b. below elbow level
- _____ c. above elbow level

3. The position of the wrists is

- _____ a. fairly straight in line with hands and arms
- _____ b. humped above line
- _____ c. sagging below line

4. With a desk available, the pupil holds his book

- _____ a. on the desk perpendicular to the body
- _____ b. on the desk slanted to the right
- _____ c. on the desk slanted to the left
- _____ d. on his lap in front of the desk

5. The pupil's posture when reading is

- _____ a. erect
- _____ b. almost erect
- _____ c. inclined
- _____ d. excessively inclined

6. The pupil's demeanor while reading is

- _____ a. relaxed
- _____ b. almost relaxed
- _____ c. tense
- _____ d. very tense

7. The pupil's behavior during reading is characterized by

- _____ a. no mannerisms or unnecessary movements
- _____ b. head movements
- _____ c. body rocking
- _____ d. eye poking
- _____ e. other mannerisms

8. The pupil reads with

- _____ a. both hands
- _____ b. right hand only
- _____ c. left hand only
- _____ d. either hand

9. The pupil uses hands in such a manner that

- _____ a. both hands move together part way across the line before the left hand drops down to the next line while the right hand finishes the line
- _____ b. the left hand stays near the left side of the page and locates the beginning of the line while the right hand reads across the line
- _____ c. the left hand reads alone and finds the next line unassisted
- _____ d. the right hand reads alone and finds the next line unassisted
- _____ e. (other) _____

10. The pupil holds his fingers so that

- _____ a. the fingers make an acute angle with the page
- _____ b. the fingers are almost parallel to the page
- _____ c. the fingers are perpendicular to the page

11. The pupil reads with

- _____ a. index and second fingers of both hands
- _____ b. both index fingers
- _____ c. index and second finger of one hand
- _____ d. one index finger only
- _____ e. (other combinations, specify) _____

12. The pupil moves fingers across the dots

- _____ a. at a steady rate
- _____ b. stopping and rereading words or word segments frequently
- _____ c. making frequent return sweeps

13. The pupil reads letters with up and down motions

- _____ a. seldom if ever
- _____ b. occasionally
- _____ c. frequently

14. The pupil's pressure on his fingertips is

- _____ a. light and even
- _____ b. heavy and even
- _____ c. uneven

15. The pupil loses his place

- _____ a. seldom if ever
- _____ b. sometimes
- _____ c. frequently

16. The pupil uses his remaining vision

- _____ a. for three-dimensional objects
- _____ b. for pictures
- _____ c. for braille reading assistance
- _____ d. not at all

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